

UC-NRLF



D 2 571 424

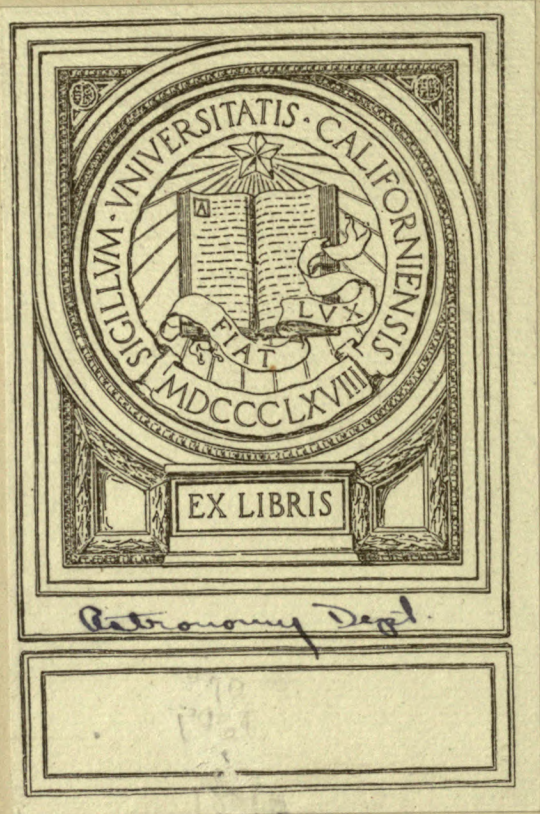
A NEW
STAR ATLAS

BY

R. A. PROCTOR, B.A., F.R.A.S.



SEVENTH EDITION



EX LIBRIS

Botany Dept.

A STAR ATLAS

FOR STUDENTS AND OBSERVERS

SHOWING

6000 STARS AND 1500 DOUBLE STARS, NEBULÆ, &c.

IN TWELVE MAPS ON THE EQUIDISTANT PROJECTION:

WITH

INDEX MAPS ON THE STEREOGRAPHIC PROJECTION.

BY

RICHARD A. PROCTOR,

AUTHOR OF 'THE GNOMONIC STAR ATLAS,' 'SATURN AND ITS SYSTEM,' 'THE SUN,' 'THE MOON,'
'OTHER WORLDS THAN OURS,' ETC.

SEVENTH EDITION,

REVISED AND CORRECTED BY

T. E. ESPIN.

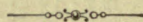
LONGMANS, GREEN, AND CO.

LONDON, NEW YORK, AND BOMBAY.

1896.

Q365
P79
1896
Astron. Dept.

PREFACE TO THE SEVENTH EDITION.



IN the present edition (1) the double stars down to magnitude seven, (2) all the variable and red stars in 'Celestial Objects for the Common Telescope,' (3) various objects of interest that have been subsequently discovered, have been inserted. The lines indicated in the Nineteenth Edition of the smaller Atlas have been followed. The Boundaries of Constellations used by Webb and Proctor are different, and, consequently, stars entered in Webb under one constellation will be found frequently within the boundaries of another in Proctor. The confusion is particularly troublesome in Map No. 1. In other maps alterations have been made either to bring two maps into harmony, or to include in their proper constellation variable stars. In some cases stars marked red have 'Va' placed under 'Ru,' which means that there is reason to believe them variable, and they need watching. A variable star announced, and to which no letter is assigned, is marked 'Va.' Struve's numbers have been generally substituted for those of Piazzi in the New Edition, a line under Struve's number indicates that it was marked with Piazzi's hour and number in the previous editions.

T. E. ESPIN.

TOW LAW, R.S.O., Co. Durham :

June 19, 1896.

Astronomy Dept.

INTRODUCTION TO THE FOURTH EDITION.

THREE editions of this Atlas having been sold in about the time during which I had thought it likely that the first would be disposed of, it appears more persons find the atlas useful than I had expected. I have therefore thought it desirable to publish a cheaper edition of the work. I must point out that there has not been, in this case, the reason for cheapening which commonly holds with atlases. Twenty or thirty years after the date for which an atlas is constructed, the effects of precession throw the stars appreciably out of place, and though such precession arrows as I have drawn in these maps enable the observer to make ready correction, it is more convenient to use an atlas constructed nearer to date. But as yet the date (1880) for which this atlas is constructed has not even been reached. The atlas is more nearly correct in this respect than when it was first published, and will continue to be so until the year 1890. It will not be as far from exactness (on account of precession) as the S.D.U.K. maps and Harding's Atlas now are until the year 1927.

The gnomonic maps formerly used as index-plates have been replaced by a single sheet, showing the arrangement of the northern and southern maps at one view. As an index-plate this is more convenient than the former. The gnomonic maps, which show the constellation figures (coloured), and the lines of longitude and latitude to every five degrees, form, in fact, an atlas by themselves. They can now be procured of the Publishers of the present atlas, either separately (2s. 6d. each), or with a letterpress explanation, and duplicates on a black ground (7s. 6d.). For certain purposes, and especially for the interpretation of old accounts of the constellations (when, owing to precession, these were very differently situated than at present), the gnomonic atlas is useful; but since many who use this atlas will have little occasion for the gnomonic maps, it seemed to me their omission would be a suitable way of reducing the cost of the present edition. The letterpress has also been considerably reduced: in other respects the contents of the atlas have been improved. Many corrections and additions have been made in this edition; *inter alia*, sixty or seventy stars not marked as double or triple in the earlier editions, and for the most part not known to be so, have been marked as such, a correction for which I have to thank Mr. S. W. Burnham of Chicago. The new names, devised to reduce as far as possible the writing on the maps, have been replaced by the old names, the only remaining changes being the following:—For Ursa Major I write *Ursa*; for Canis Major, *Canis*; for Corona Borealis, *Corona*; for Triangulum Boreale, *Triangula*; for Piscis Australis, *Piscis*; for Vulpecula, *Vulpes*; for Equuleus, *Equus*; and for Delphinus, *Delphin*. All corrections have been made by myself in the original drawings, which have been photo-lithographed afresh.

The arrangement of the maps, and the methods used in projecting them, need not be specially described here. Let it simply be noted that the sphere being supposed to be divided into twelve equal spherical pentagons, two of them polar, the twelve maps here given are equidistant projections of the twelve overlapping spherical spaces enclosed by circles circumscribing these pentagons, the *maximum* distortion—at the border—amounts only to an extension in length of one-fourteenth part in a direction perpendicular to the radius. This is scarcely appreciable.

The stars are taken from the B.A. Catalogue, and include all down to the sixth magnitude inclusive. The magnitudes of that Catalogue are followed, except in the case of stars whose light

was measured by Sir J. Herschel; these have been shown according to his measurement. Bayer's Greek letters have been given by preference; next Flamsteed's letters; and italic and roman letters *pro re nata*.

Besides the stars of the B.A.C., forming the groundwork of the atlas, it shows:—

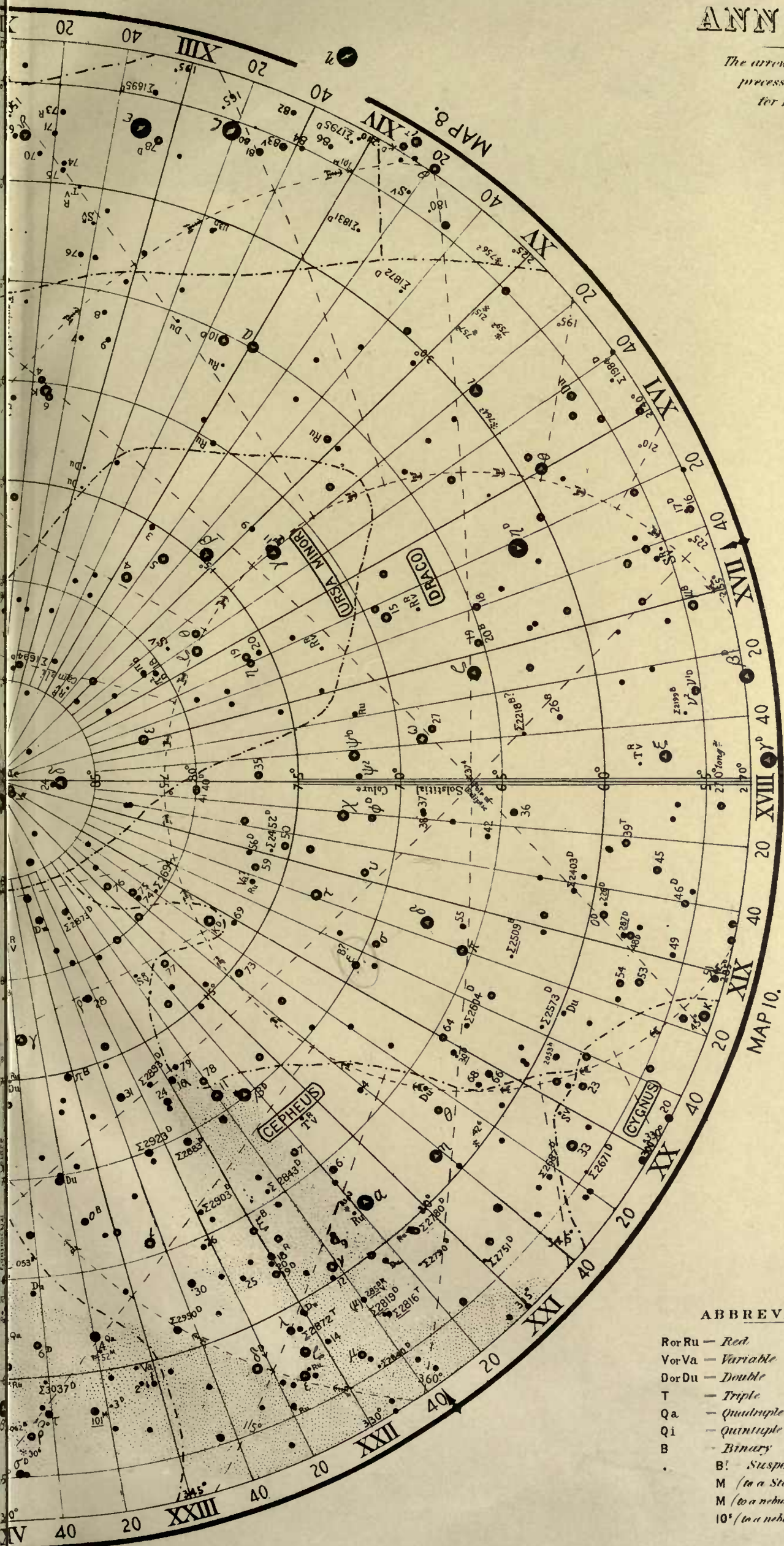
1. All the nebulae down to the order 'Very bright' (inclusive) in Sir J. Herschel's Catalogue, and all Messier's.
2. All binaries in Mr. Brother's Catalogue.
3. All the objects in the Bedford Catalogue.
4. All Schjellerup's red stars (293 in all).
5. All variables in a list of 136, kindly drawn up for me by Mr. Baxendell, of Manchester.
6. All stars described as double or triple in Sir J. Herschel's Cape Observations are so marked here, as also those in Mr. Burnham's list above mentioned.

All 'objects' have been named where possible; the stars preferably (failing Greek letter or Flamsteed's number) with Piazzi's horal numbers; nebulae preferably with Messier's numbers.

The constellations are those recommended in the Introduction to the B.A. Catalogue. *The boundaries are made as simple as possible: they must be understood as meaning no more than this; that in the case of every star bearing a Greek letter or Flamsteed's number, the letter or number relates to that constellation within whose boundary the star is set.* The authors of the B.A. Catalogue are responsible for so changing the boundaries that in some cases Greek letters and Flamsteed's numbers have had to be given up. I agree with them entirely, however. It seems to me that it would be absurd for astronomers to allow themselves to be hampered by constellation boundaries, or to be required to treat these as the geographer treats the boundaries of oceans and continents. Therefore, in laying down the boundaries I have paid no attention to any considerations except those italicised above. In ninety-nine cases out of a hundred, the stars dealt with by astronomers are no longer referred to constellations; and if the constellation boundaries and names were as entirely removed from celestial atlases as the constellation figures have been, very little inconvenience would follow. Means would have to be provided for identifying the few thousand stars *now* referred to constellations, in the same way that means have been found for identifying tens of thousands not so referred. After that had once been done, astronomy as an exact science would, in my opinion, gain greatly by the removal of the constellations; though I must admit that so far as popular astronomy is concerned, I should be sorry to see the foolish old figures removed.

RICHARD A. PROCTOR.

The arrows indicate the
precessional motion
for 100 Years.



ABBREVIATIONS.

- | | | | |
|-------------------------------|--------------------|----|------------------|
| Ror Ru | — Red | Tr | — Triumvir |
| Vor Va | — Variable | z | — 21 Piazzi |
| Dor Du | — Double | Σ | — Struve |
| T | — Triple | Δ | — Dunlop |
| Qa | — Quadruple | H | — Sir W Herschel |
| Qi | — Quintuple | h | — Sir J Herschel |
| B | — Binary | | |
| B' | — Suspected Binary | | |
| M (to a Star) | — Multiple | | |
| M (to a nebula) | — Messier | | |
| 10 ^s (to a nebula) | — H. V. 10. | | |

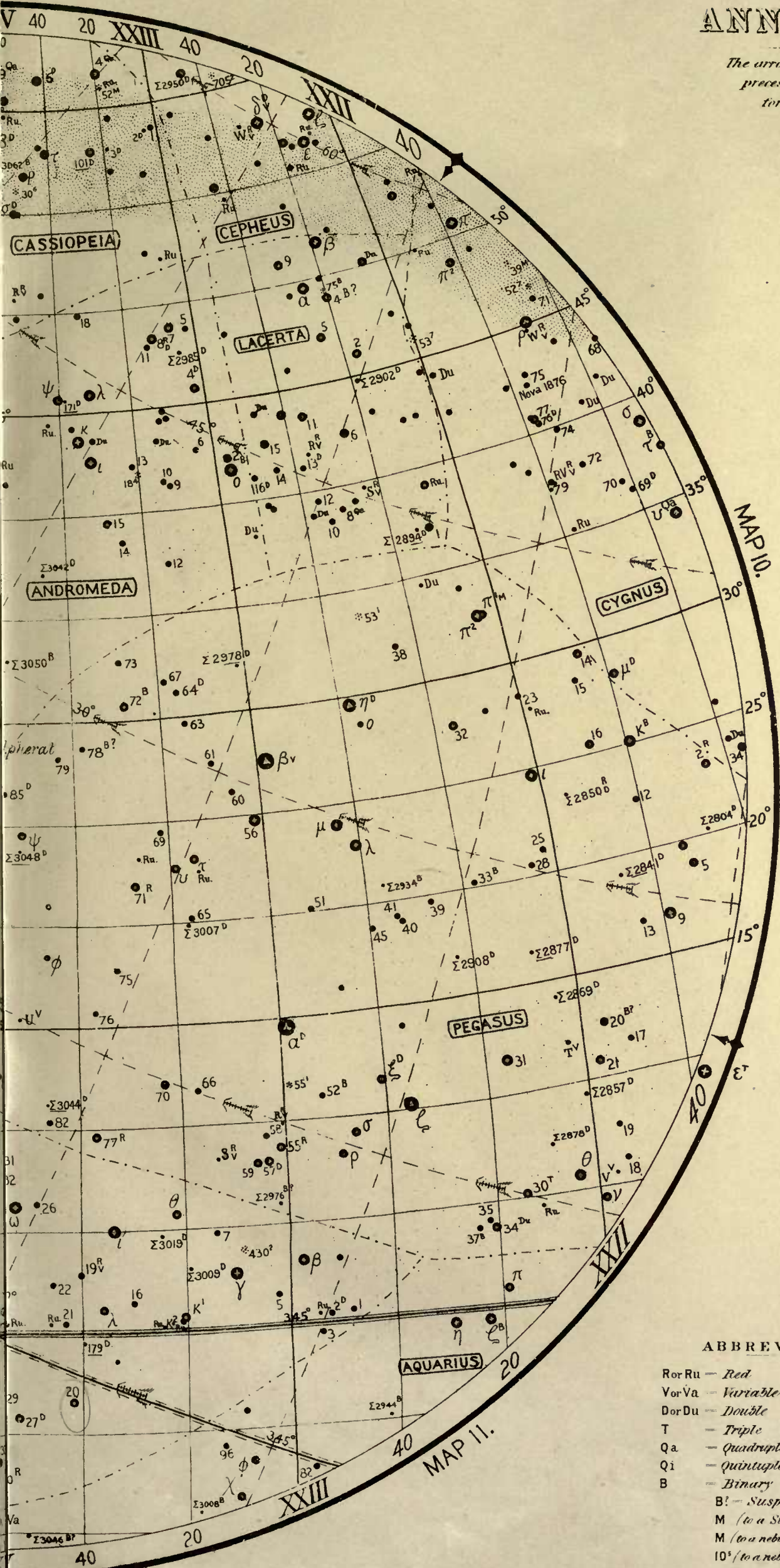
MAP 2.



STAR MAGNITUDES.

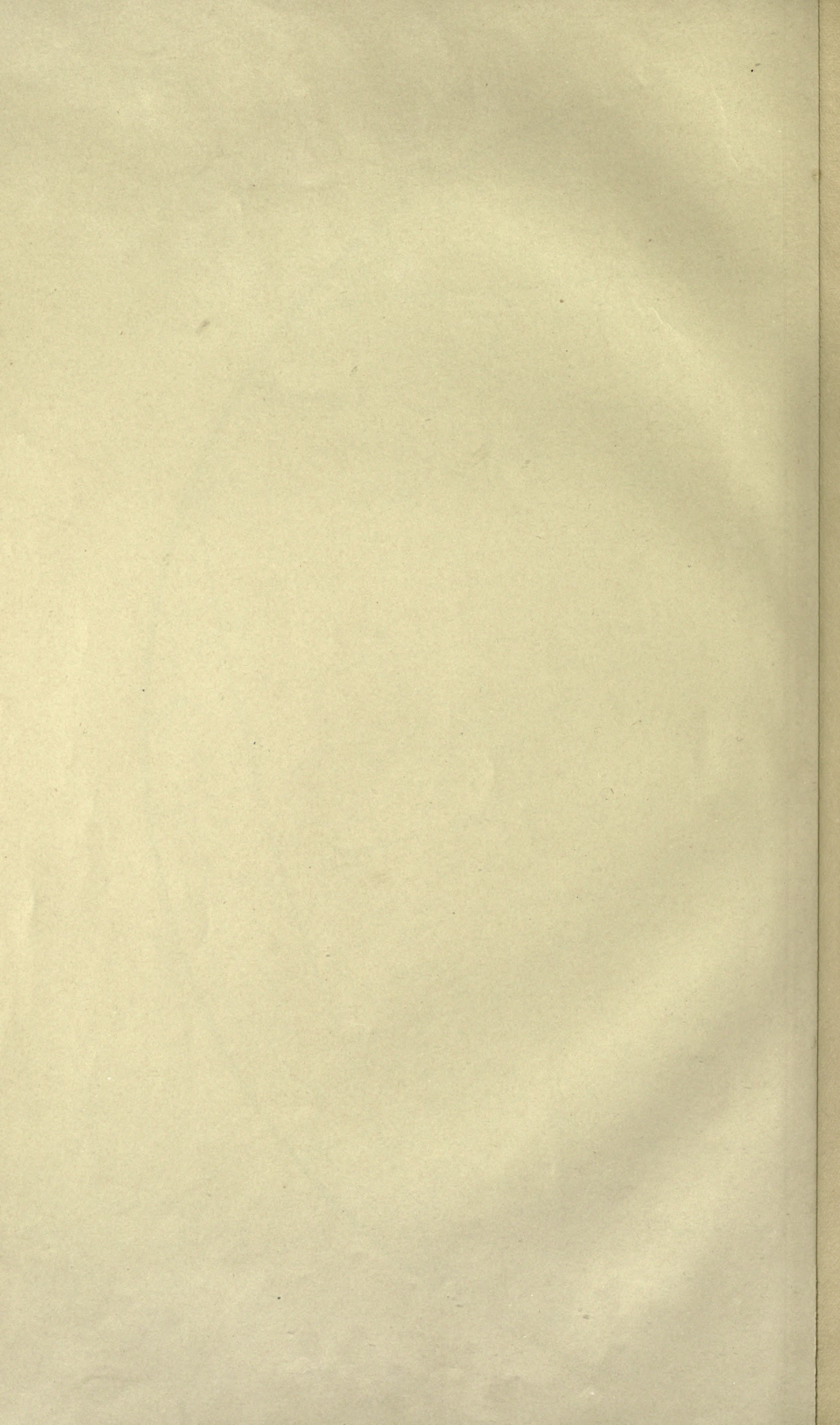
- to ● — FIRST.
- to ● — SECOND.
- ▲ to ▲ — THIRD.
- — FOURTH.
- — FIFTH.
- — SIXTH.
- — SEVENTH and under.
- * — NEBULA.

The arrows indicate the
precessional motion
for 100 Years.

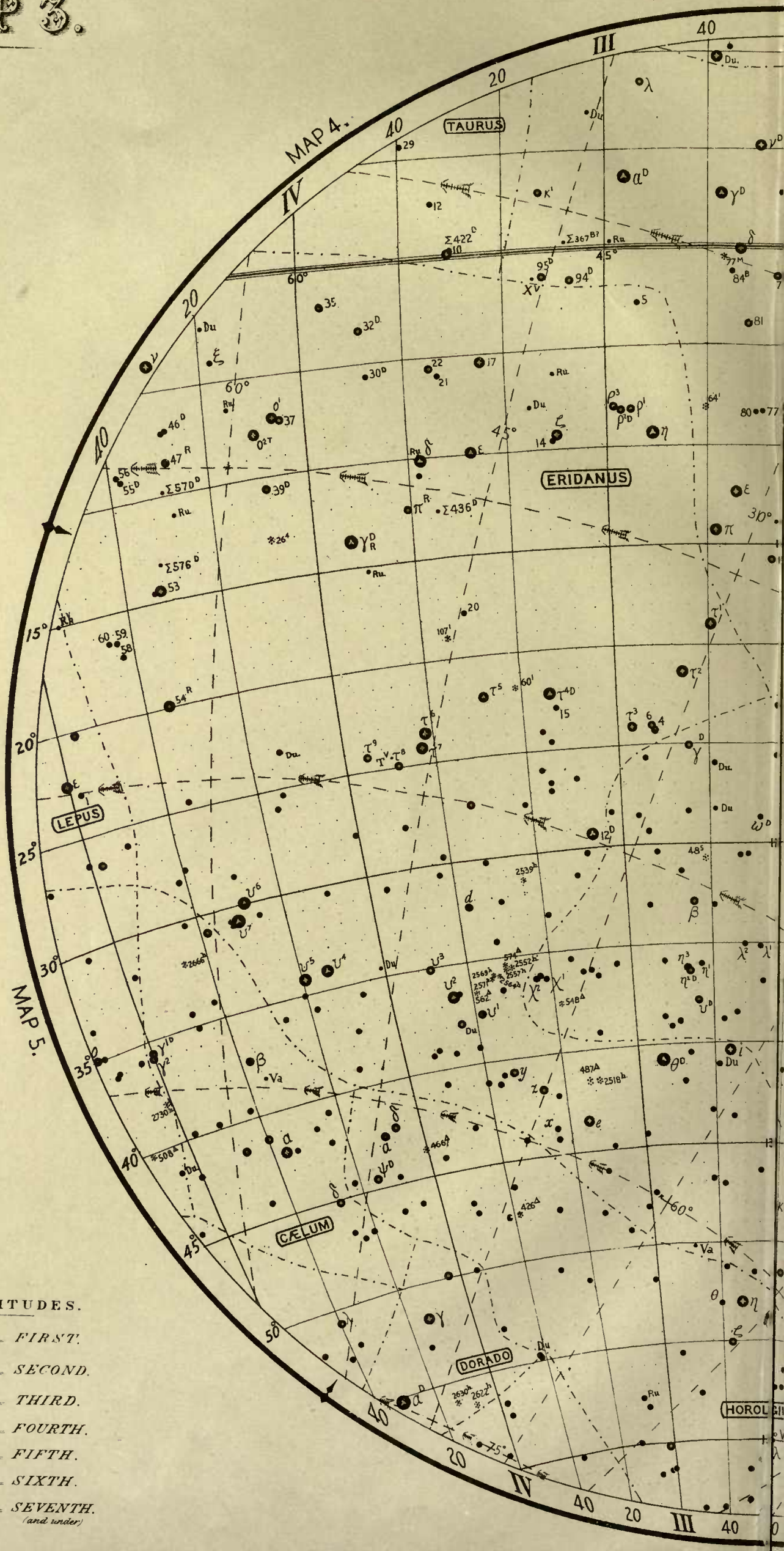


ABBREVIATIONS.

Ror Ru	Red	Tr	Triary
V or Va	Variable	21	21 Piazzi
D or Du	Double	Σ	Struve
T	Triple	Δ	Dunlop
Qa	Quadruple	H	Sir W. Herschel
Qi	Quintuple	h	Sir J. Herschel
B	Binary		
B?	Suspected Binary		
M (to a Star)	Multiple		
M (to a nebula)	Messier		
IO ^s (to a nebula)	H. V. IO.		



MAP 3.



*** STAR MAGNITUDES.**

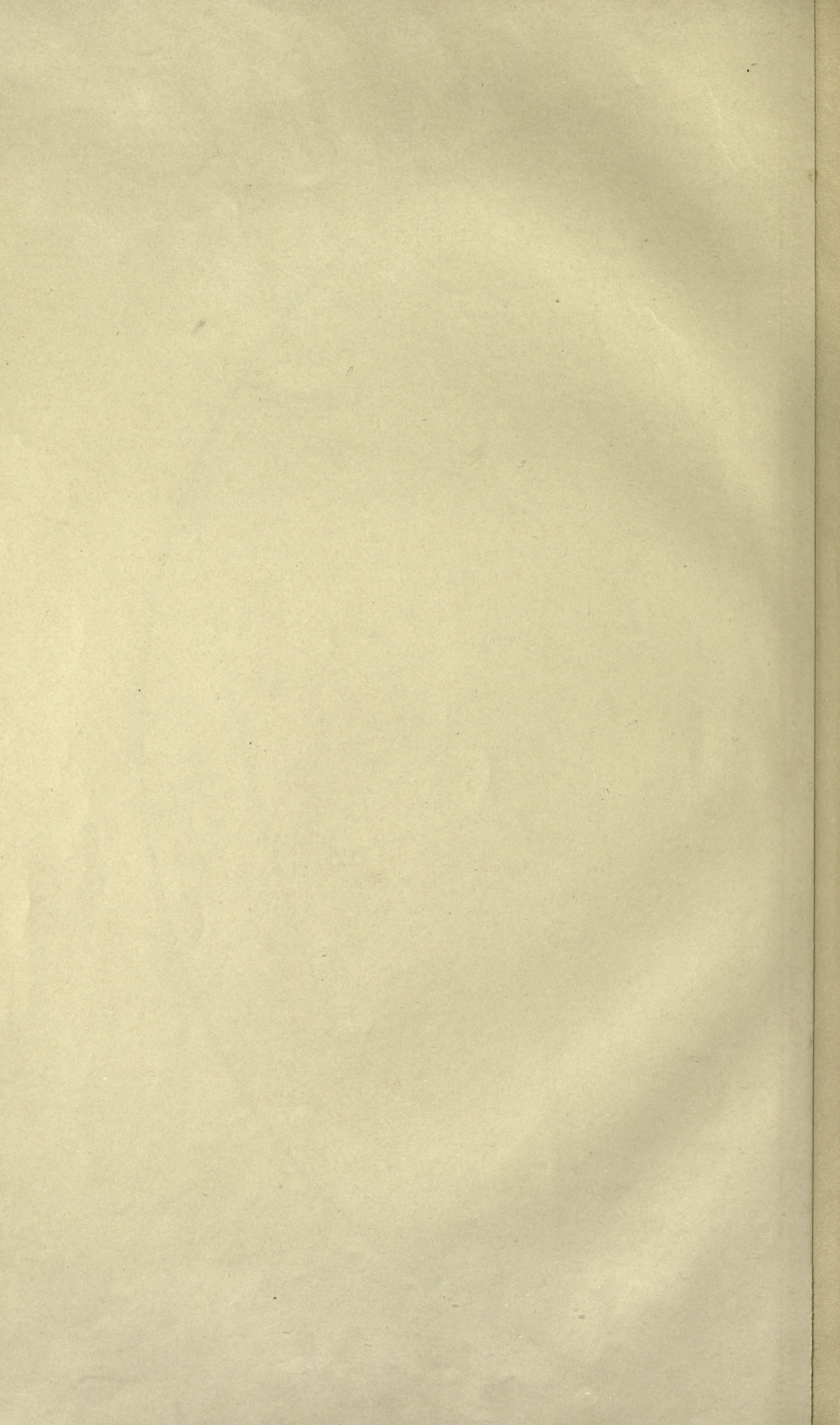
- to ● — FIRST.
- to ● — SECOND.
- ▲ to ▲ — THIRD.
- ◊ — FOURTH.
- — FIFTH.
- — SIXTH.
- — SEVENTH.
(and under)
- ☼ — NEBULA.

The arrows indicate the
precessional motion
for 100 Years.



ABBREVIATIONS.

- | | | | |
|-------------------|--------------------|----|-------------------|
| Ror Ru | — Red | Tr | — Triary |
| Vor Va | — Variable | z | — 21 Piazzi |
| Dor Du | — Double | Σ | — Struve |
| T | — Triple | Δ | — Donlop |
| Qa | — Quadruple | H | — Sir W. Herschel |
| Qi | — Quintuple | h | — Sir J. Herschel |
| B | — Binary | | |
| B? | — Suspected Binary | | |
| M (to a Star) | — Multiple | | |
| M (to a nebula) | — Messier | | |
| 10° (to a nebula) | — H. V. 10. | | |



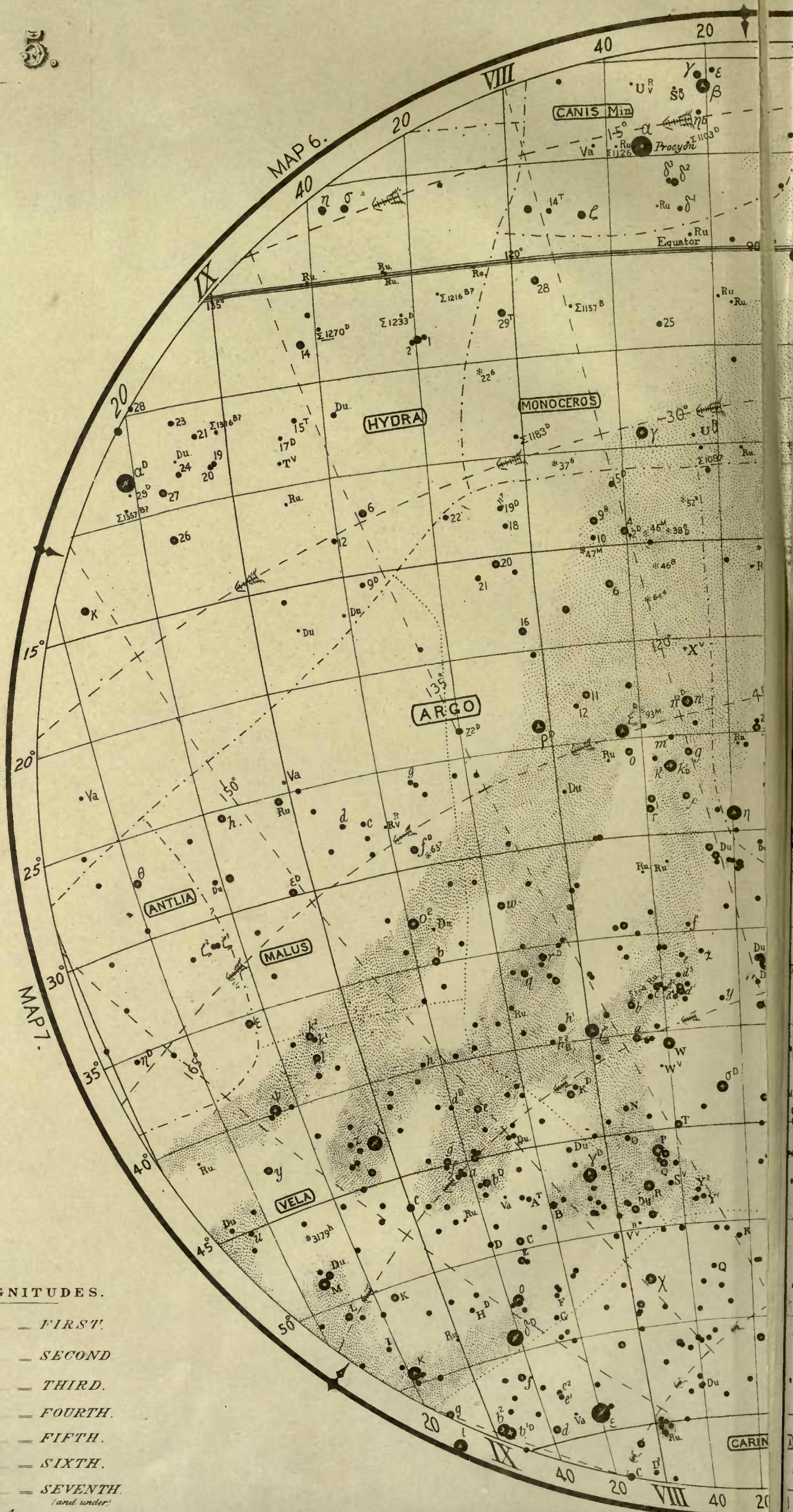
MAP 4.



STAR MAGNITUDES.

- to ● — FIRST.
 - to ● — SECOND.
 - ▲ to ▲ — THIRD.
 - ◊ — FOURTH.
 - ◊ — FIFTH.
 - ◊ — SIXTH.
 - ◊ — SEVENTH.
 - ◊ — SEVENTH.
 - ☉ — NEBULA.
- (and under)*

MAP 5.



- STAR MAGNITUDES.**
- to ● — FIRST.
 - to ● — SECOND.
 - to ● — THIRD.
 - — FOURTH.
 - — FIFTH.
 - — SIXTH.
 - — SEVENTH.
(and under)
 - ☉ — NEBULA.

CANIS

VELA

MAP

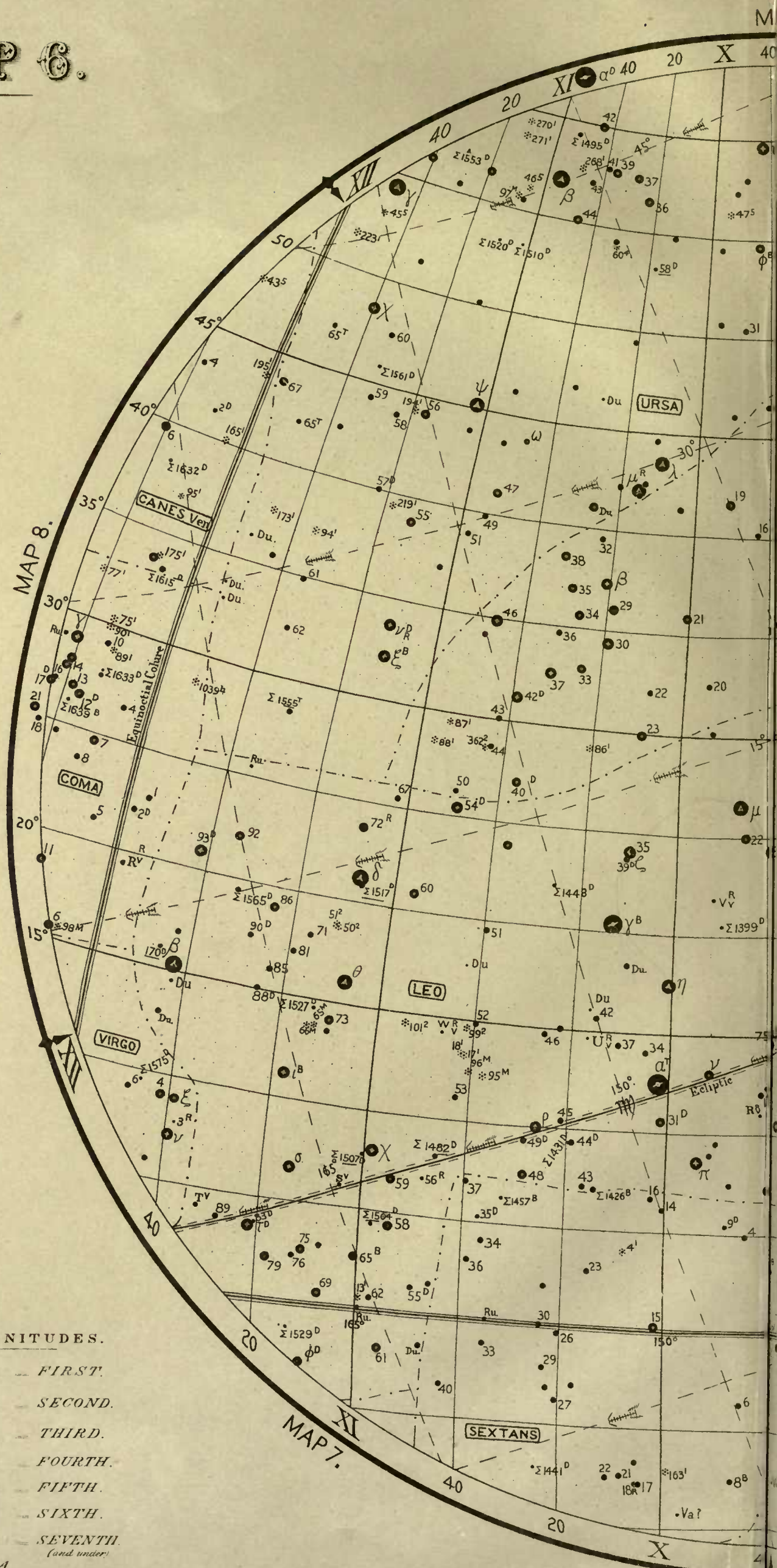
The arrows indicate the
precessional motion
for 100 Years.



ABBREVIATIONS.

- | | | | |
|-------------------------------|--------------------|----|------------------|
| RorRu | — Red | Tr | — Triary |
| VorVa | — Variable | z | — 21 Piazzi |
| DorDu | — Double | Σ | — Struve |
| T | — Triple | Δ | — Dunlop |
| Qa | — Quadruple | H | — Sir W Herschel |
| Qi | — Quintuple | h | — Sir J Herschel |
| B | — Binary | | |
| B? | — Suspected Binary | | |
| M (to a Star) | — Multiple | | |
| M (to a nebula) | — Messier | | |
| 10 ^s (to a nebula) | — M. V. 10. | | |

MAP 6.



STAR MAGNITUDES.

- to ● — FIRST.
- to ● — SECOND.
- ▲ to ▲ — THIRD.
- ⊙ — FOURTH.
- — FIFTH.
- — SIXTH.
- — SEVENTH.
- (and under) — NEBULA.

ANNO 1880.

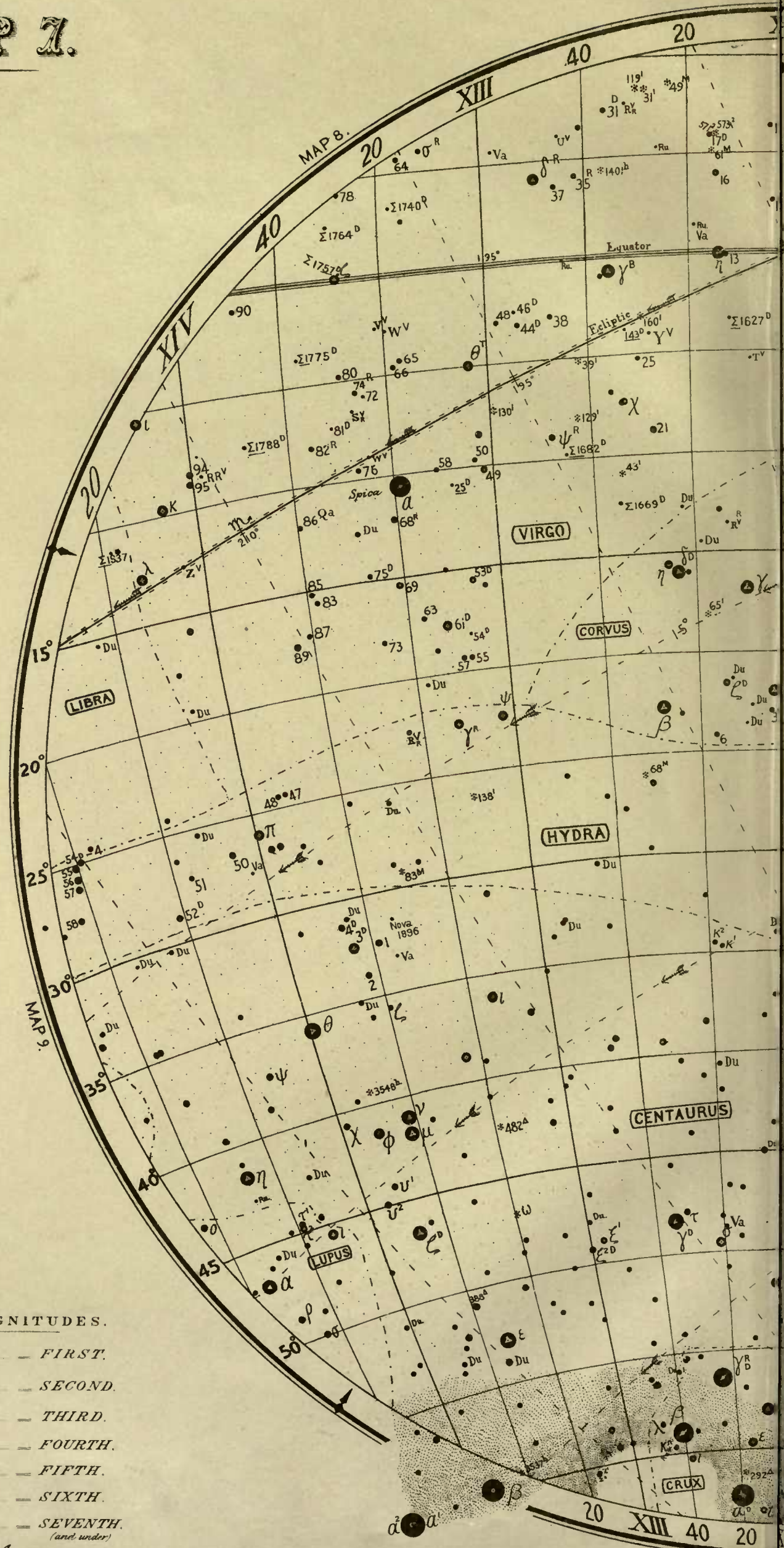
The arrows indicate the
precessional motion
for 100 Years.



ABBREVIATIONS.

- R or Ru — Red
- V or Va — Variable
- D or Du — Double
- T — Triple
- Qa — Quadruple
- Qi — Quintuple
- B — Binary
- B? — Suspected Binary
- M (to a Star) — Multiple
- M (to a nebula) — Messier
- 10° / to a nebula — H. V. 10.
- Tr — Triary
- z — 21 Piazzi
- Σ — Struve
- Δ — Dunlop
- H — Sir W. Herschel
- h — Sir J. Herschel

MAP 7.



STAR MAGNITUDES.

- to ● — FIRST.
- ◐ to ◑ — SECOND.
- ▲ to ▲ — THIRD.
- — FOURTH.
- — FIFTH.
- — SIXTH.
- — SEVENTH.
(and under)
- ☉ NEBULA.

The arrows indicate the
precessional motion
for 100 Years.



ABBREVIATIONS.

- | | | | |
|--------|------------------------|----|-----------------|
| Ror Ru | Red | Tr | Trinary |
| Vor Va | Variable | 21 | 21 Piazzi |
| Dor Du | Double | Σ | Struve |
| T | Triple | Δ | Dunlop |
| Qa | Quadruple | H | Sir W. Herschel |
| Qi | Quintuple | h | Sir J. Herschel |
| B | Binary | | |
| B' | Suspected Binary | | |
| M | (to a Star) Multiple | | |
| M | (to a nebula) Messier | | |
| ID' | (to a nebula) H. V. 10 | | |

MAP 8.

MAP



STAR MAGNITUDES.

- to ● — FIRST.
 - to ● — SECOND.
 - to ● — THIRD.
 - — FOURTH.
 - — FIFTH.
 - — SIXTH.
 - — SEVENTH.
 - ☼ NEBULA.
- (and under)

The arrows indicate the
precessional motion
for 100 Years.



ABBREVIATIONS.

- | | | | |
|-------------------|------------------|----|----------------|
| Ror Ru | Red | Tr | Triary |
| Vor Va | Variable | z | 21 Piazzi |
| Dor Du | Double | Σ | Struve |
| T | Triple | Δ | Dunlop |
| Qa | Quadruple | H | Sir W Herschel |
| Qi | Quintuple | h | Sir J Herschel |
| B | Binary | | |
| B? | Suspected Binary | | |
| M (to a Star) | Multiple | | |
| M (to a nebula) | Messier | | |
| 10° (to a nebula) | H. V. 10. | | |

MAP 9.



STAR MAGNITUDES.

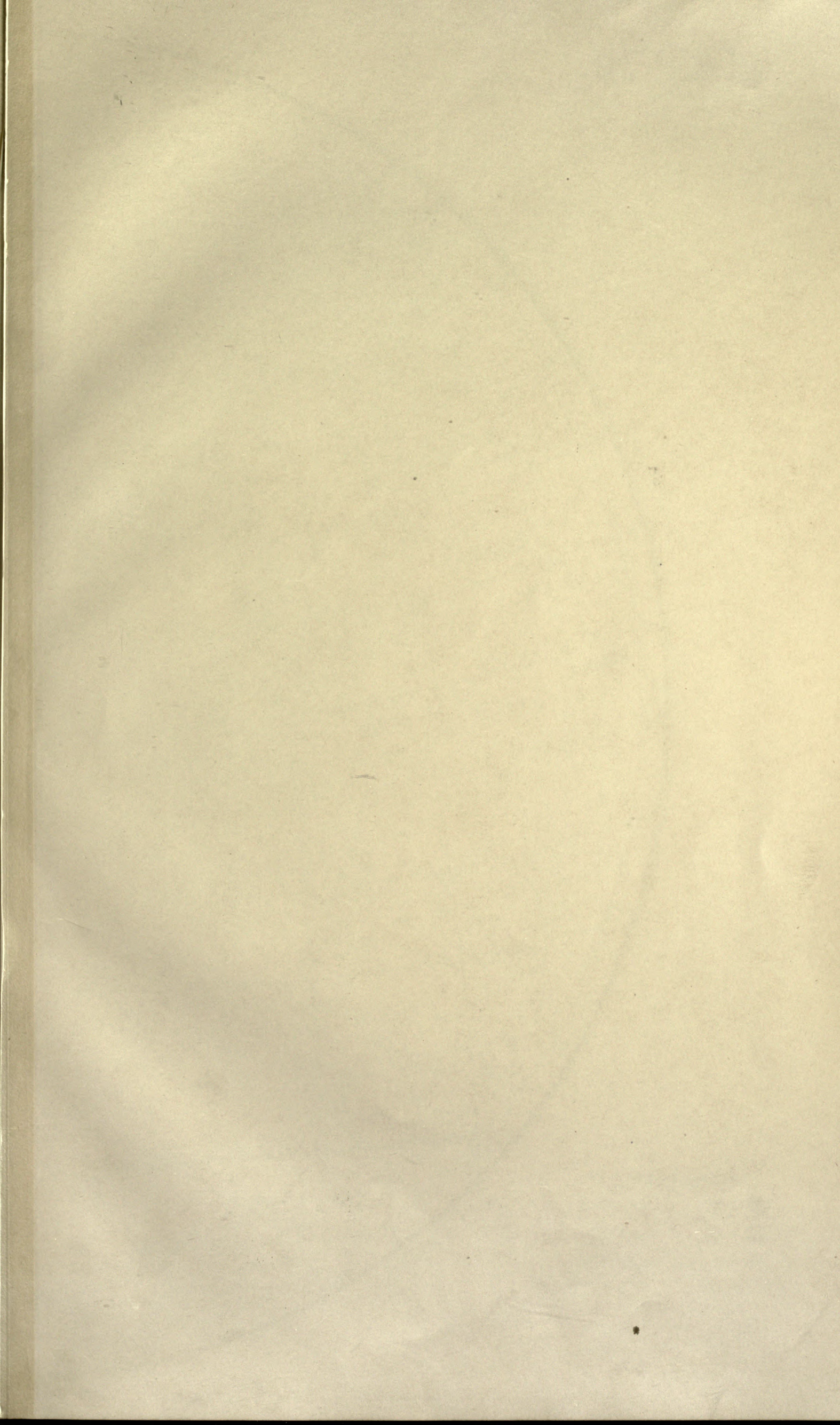
- to ● — FIRST.
- to ● — SECOND.
- ▲ to ▲ — THIRD.
- ⊙ — FOURTH.
- — FIFTH.
- — SIXTH.
- — SEVENTH.
- — 'and under'
- ☉ — NEBULA.

The arrows indicate the
precessional motion
for 100 Years.

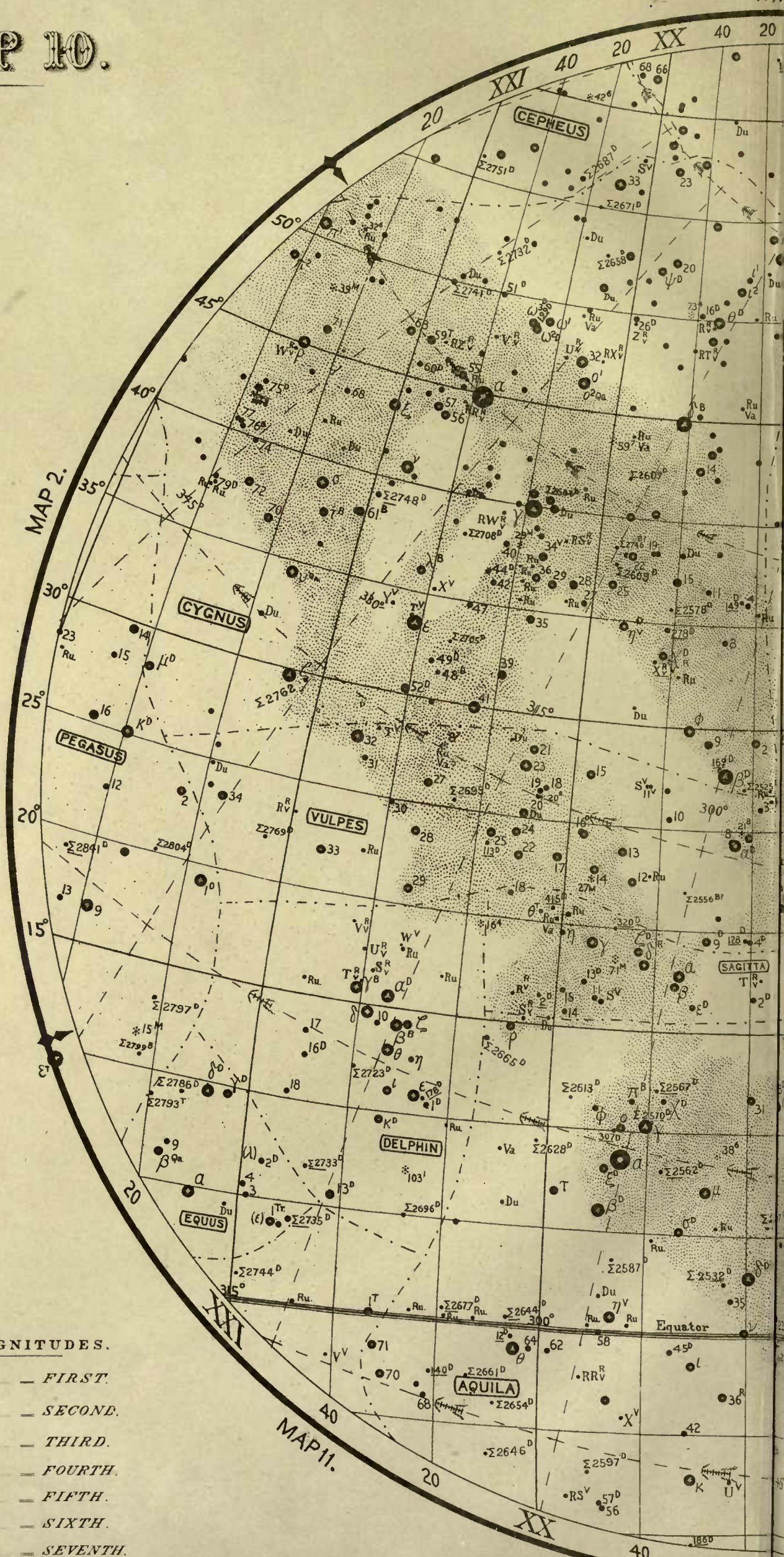


ABBREVIATIONS.

- | | | | |
|-------------------------------|------------------|----|-----------------|
| Ror Ru | Red | Tr | Triary |
| Vor Va | Variable | z | 21 Piazzi |
| Dor Du | Double | Σ | Struve |
| T | Triple | Δ | Dunlop |
| Qa | Quadruple | H | Sir W. Herschel |
| Qi | Quintuple | h | Sir J. Herschel |
| B | Binary | | |
| B! | Suspected Binary | | |
| M (to a Star) | Multiple | | |
| M (to a nebula) | Messier | | |
| ID ^s (to a nebula) | H. V. 10. | | |



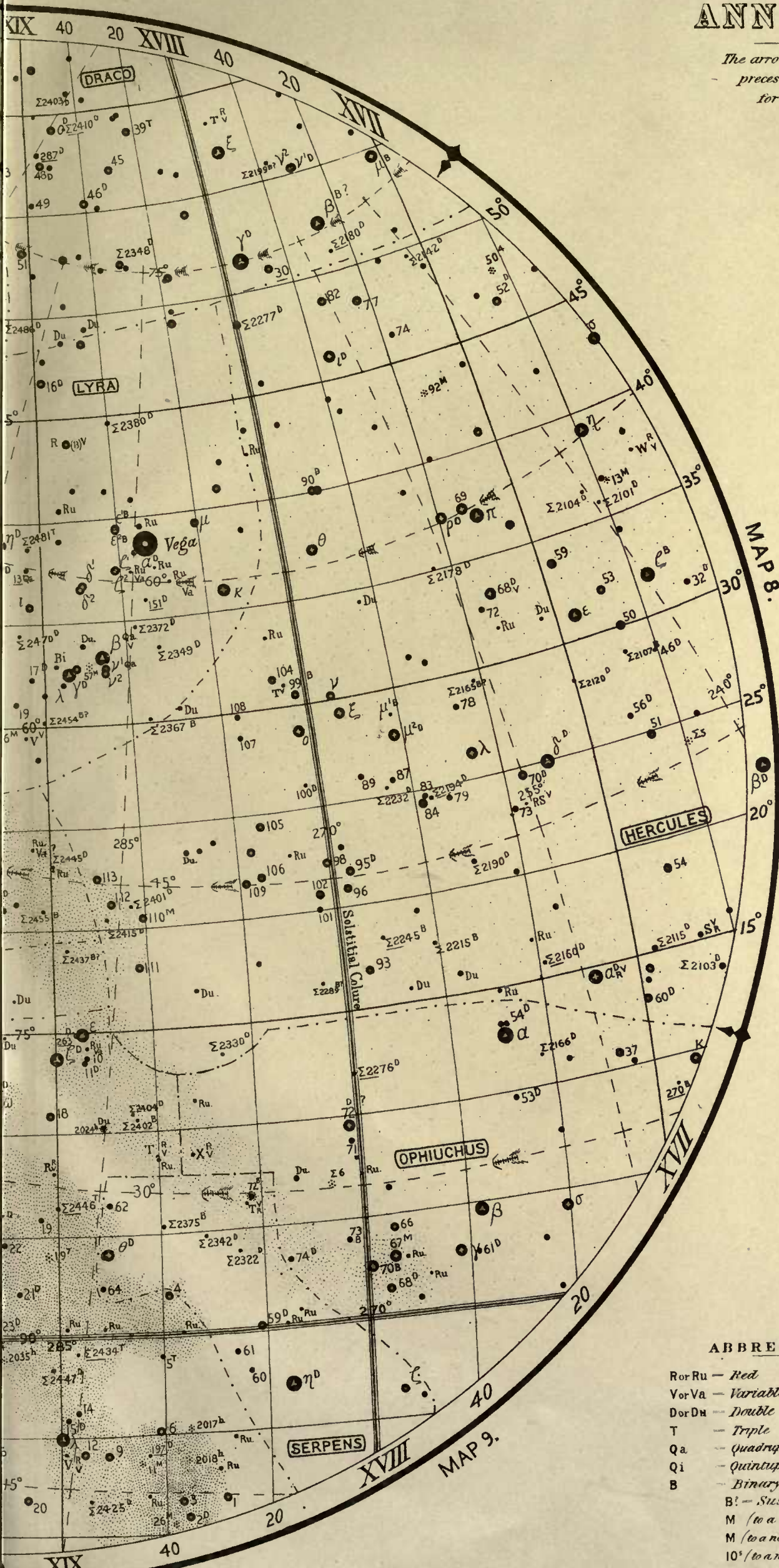
MAP 10.



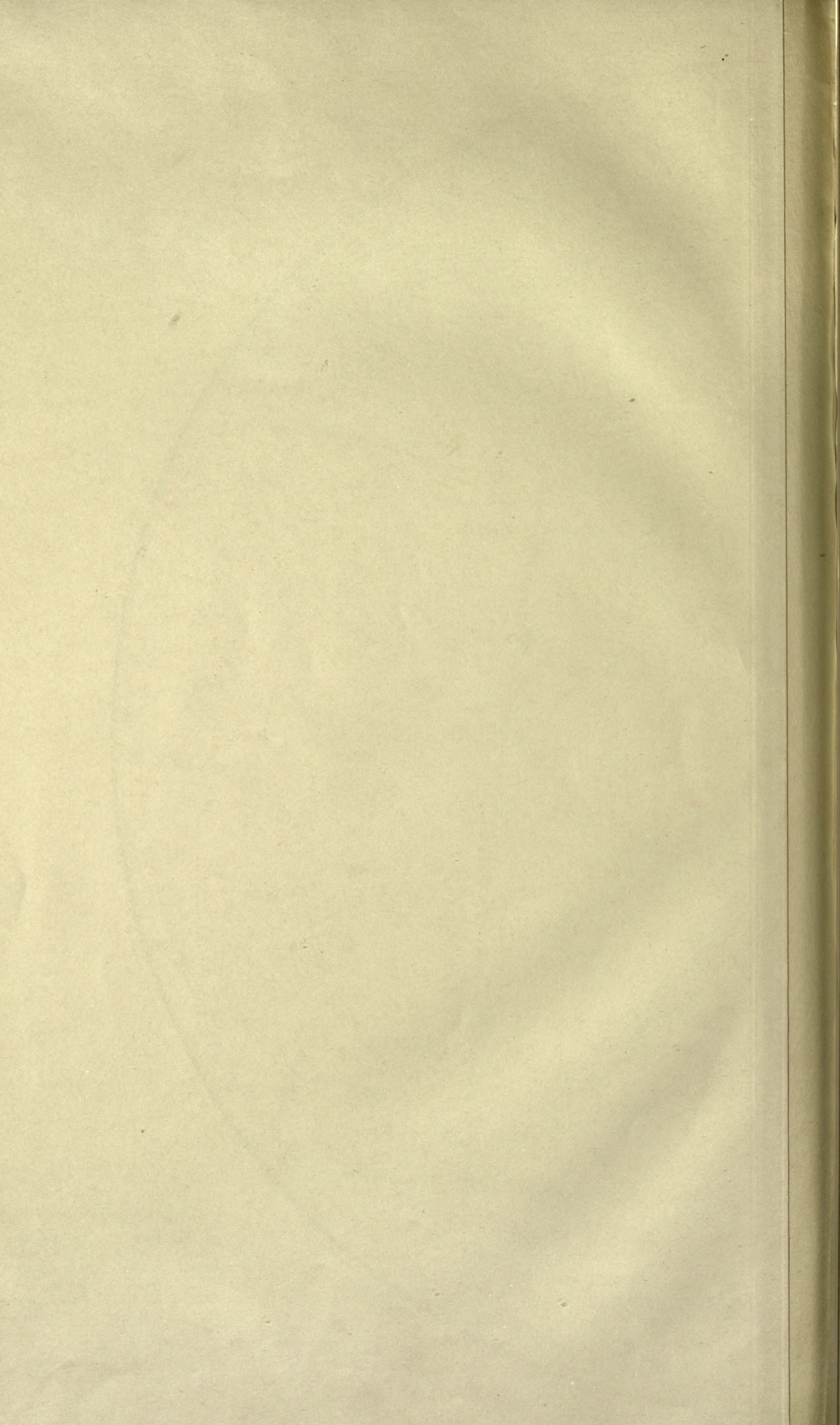
STAR MAGNITUDES.

- to ● — FIRST.
 - to ● — SECOND.
 - ▲ to ▲ — THIRD.
 - — FOURTH.
 - — FIFTH.
 - — SIXTH.
 - — SEVENTH.
 - — NEBULA.
- and under*

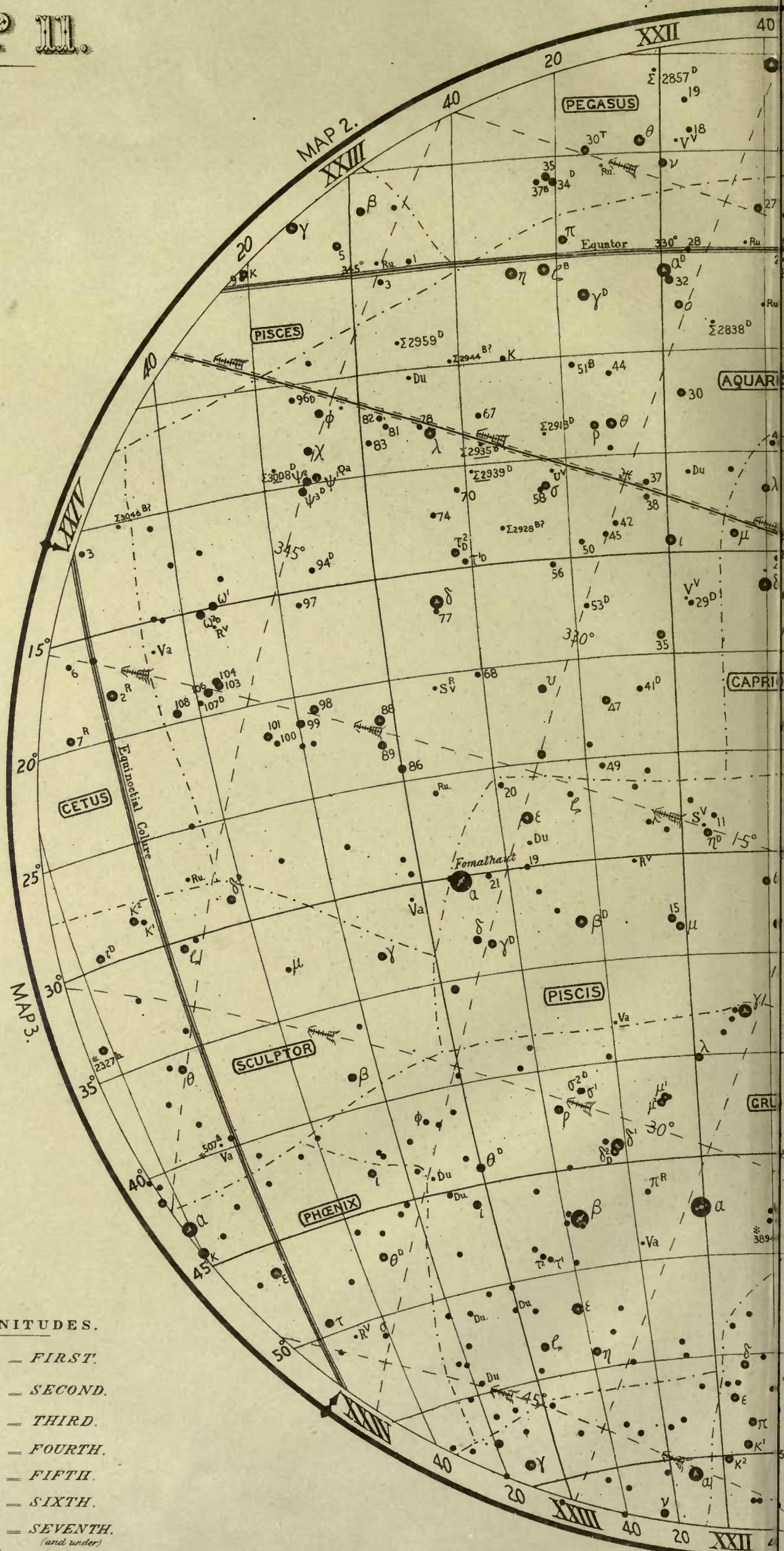
The arrows indicate the precessional motion for 100 Years.



- ABBREVIATIONS.**
- Ror Ru — Red
 - Vor Va — Variable
 - Dor Dh — Double
 - T — Triple
 - Qa — Quadruple
 - Qi — Quintuple
 - B — Binary
 - B! — Suspected Binary
 - M (to a Star) — Multiple
 - M (to a nebula) — Messier
 - 10° (to a nebula) — H. V. 10.
 - Tr — Tertiary
 - 21 — 21 Piazzi
 - Σ — Struve
 - Δ — Dunlop
 - H — Sir W. Herschel
 - h — Sir J. Herschel



MAP III.



- STAR MAGNITUDES.**
- to ● — FIRST.
 - to ● — SECOND.
 - ▲ to ▲ — THIRD.
 - ◇ — FOURTH.
 - — FIFTH.
 - — SIXTH.
 - — SEVENTH.
(and under)
 - ※ NEBULA.

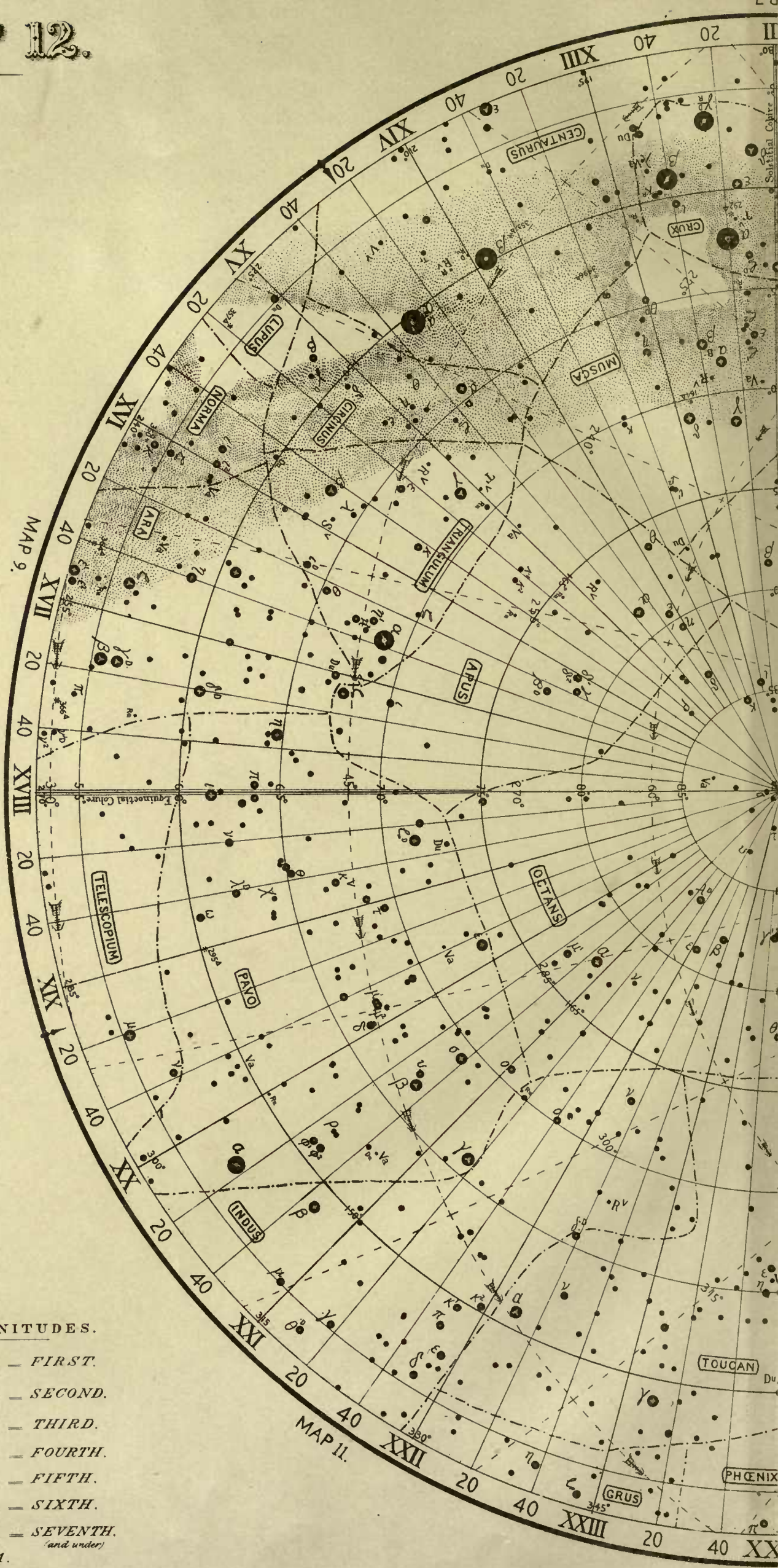
The arrows indicate the
precessional motion
for 100 Years.



ABBREVIATIONS.

- | | | | |
|-------------------|--------------------|----|-------------------|
| Ror Ru | — Red | Tr | — Trinary |
| Vor Va | — Variable | 21 | — 21 Piazzi |
| Dor Du | — Double | Σ | — Struve |
| T | — Triple | Δ | — Dunlop |
| Qa | — Quadruple | H | — Sir W. Herschel |
| Qi | — Quintuple | h | — Sir J. Herschel |
| B | — Binary | | |
| B? | — Suspected Binary | | |
| M (to a Star) | — Multiple | | |
| M (to a nebula) | — Messier | | |
| 105 (to a nebula) | — H. V. 10. | | |

MAP 12.



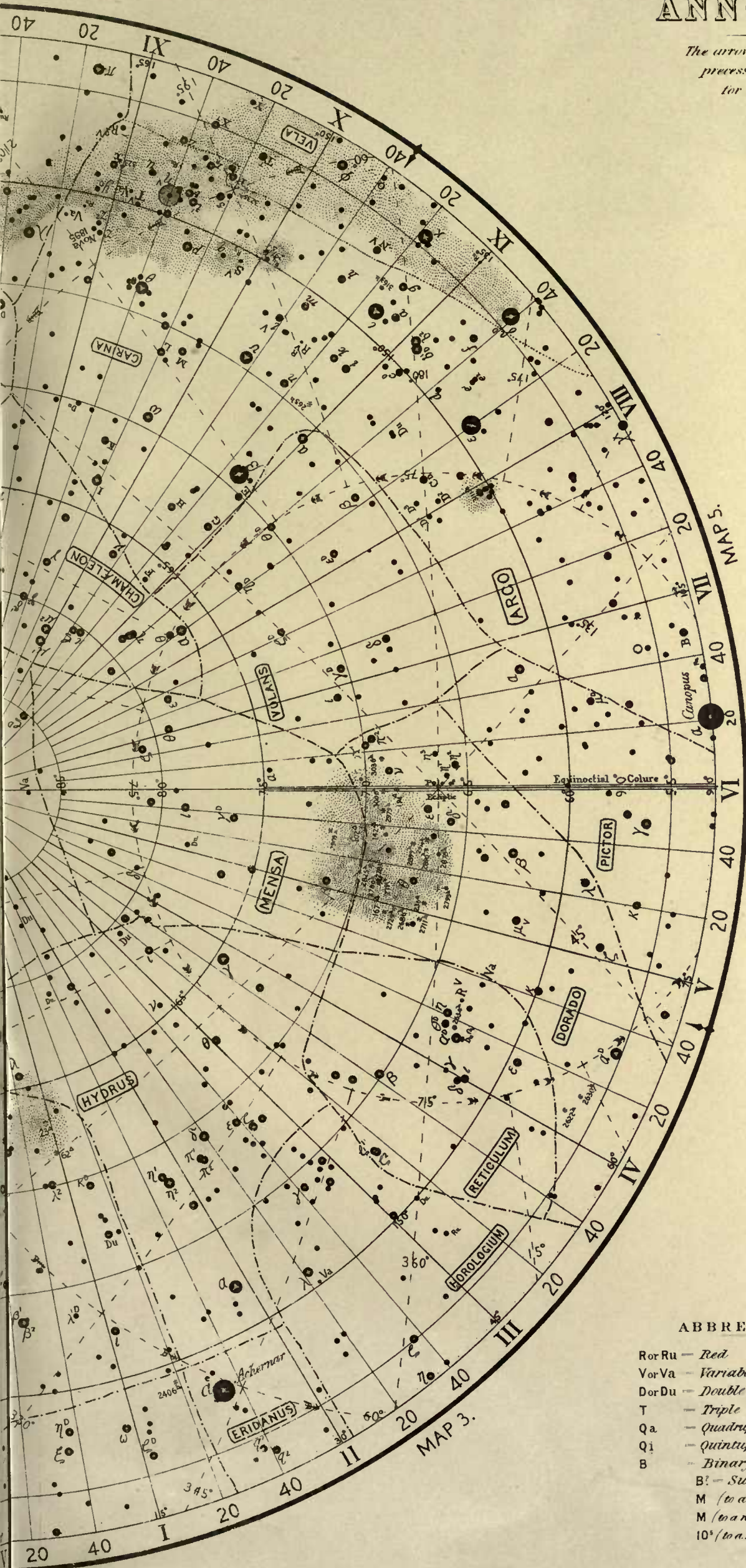
STAR MAGNITUDES.

- to ● — FIRST.
- ◐ to ◑ — SECOND.
- ◒ to ◓ — THIRD.
- ◔ — FOURTH.
- ◕ — FIFTH.
- ◖ — SIXTH.
- ◗ — SEVENTH.
(and under)
- ☉ — NEBULA.

MAP 9.

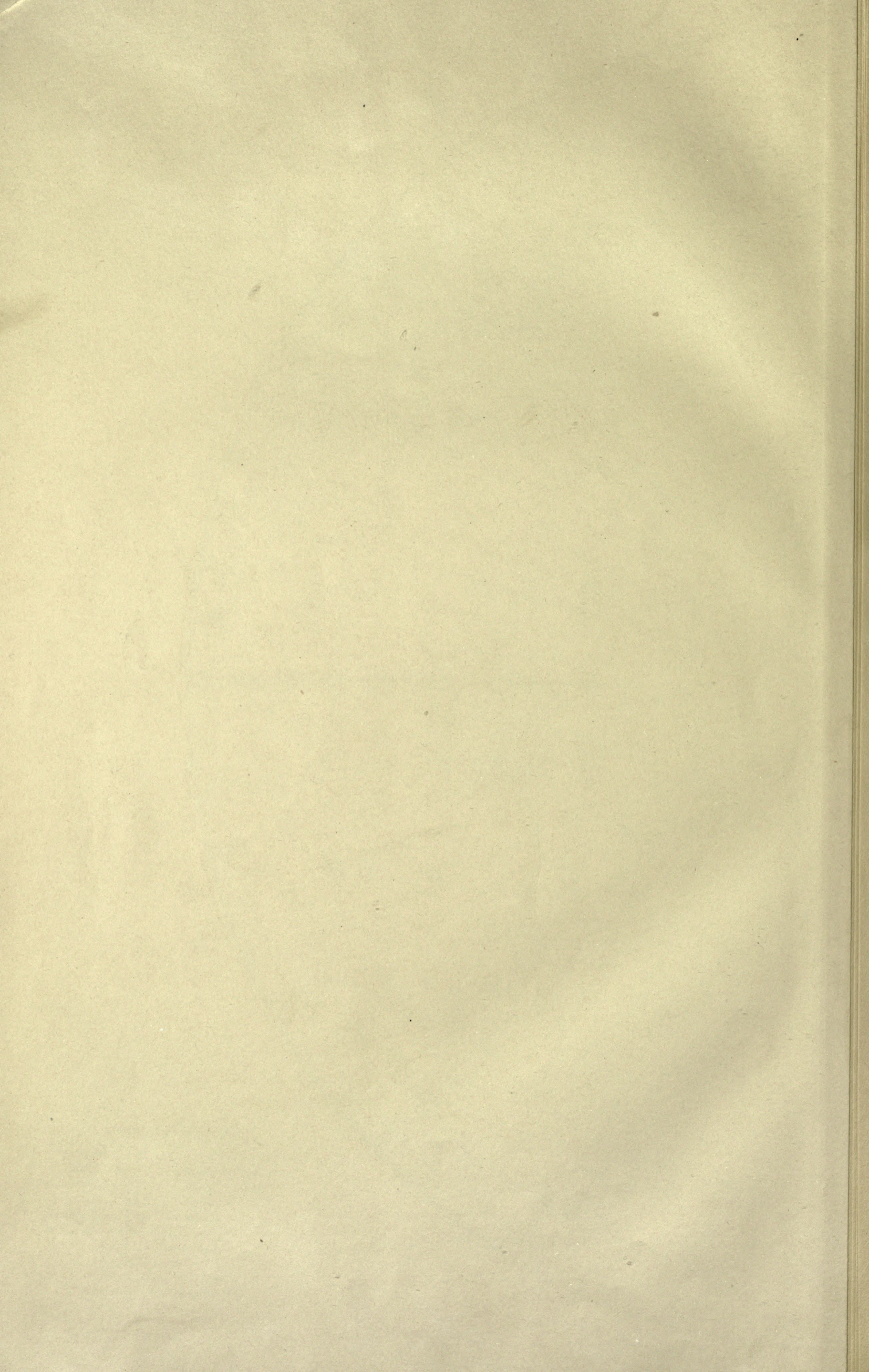
MAP 11.

The arrows indicate the
precessional motion
for 100 Years.



ABBREVIATIONS.

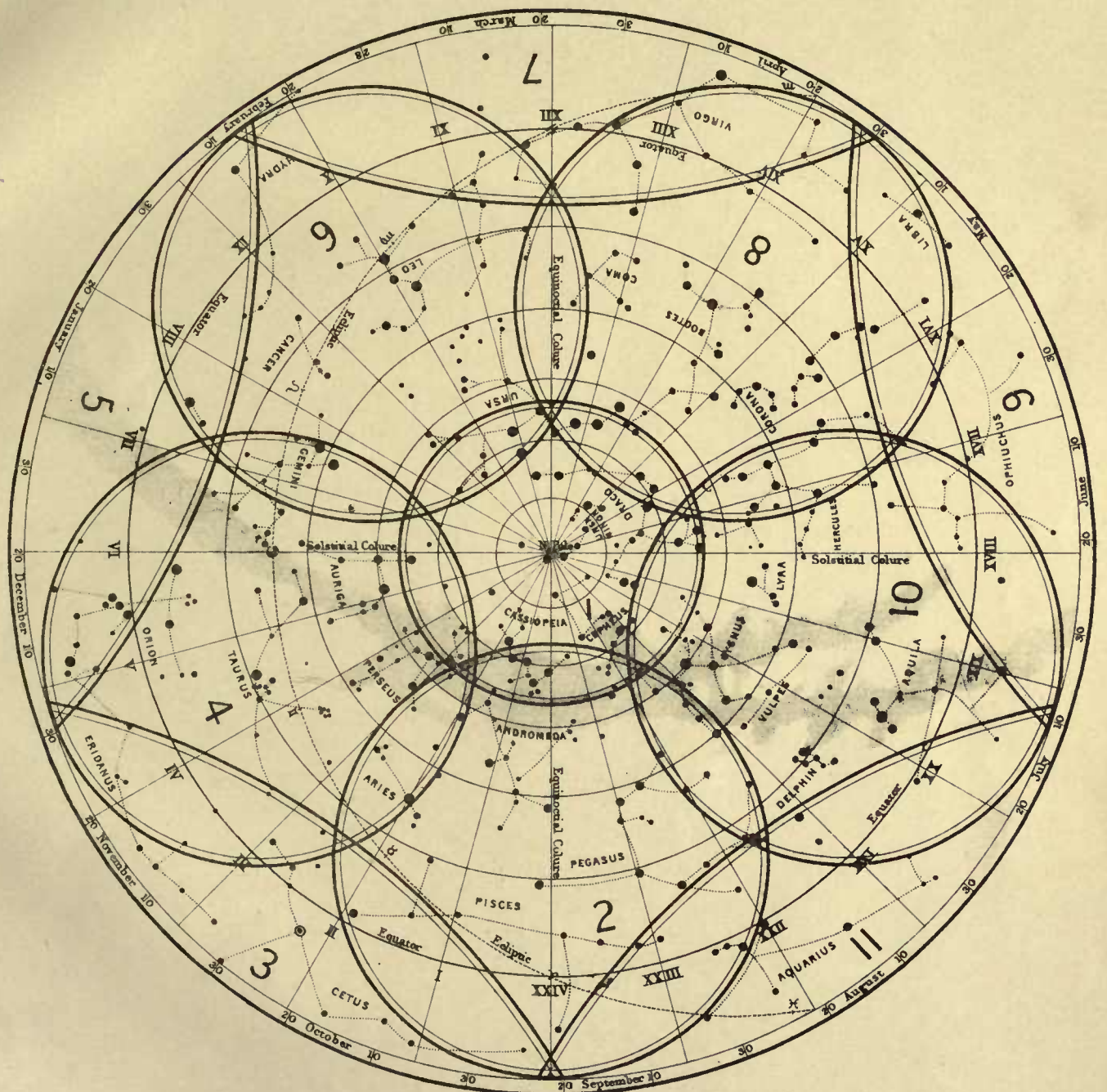
- | | | | |
|-----------------|---------------------------|----|-------------------|
| Ror Ru | — Red | Tr | — Triary |
| Vor Va | — Variable | π | — 21 Piazzi |
| Dor Du | — Double | Σ | — Struve |
| T | — Triple | Δ | — Dunlop |
| Qa | — Quadruple | H | — Sir W. Herschel |
| Qi | — Quintuple | h | — Sir J. Herschel |
| B | — Binary | | |
| B? | — Suspected Binary | | |
| M | (to a Star) — Multiple | | |
| M | (to a nebula) — Messier | | |
| 10 ^s | (to a nebula) — M. V. 10. | | |



NORTHERN
INDEX MAP
1880

*On the Stereographic
Projection.*

*Showing all the space covered
by the six Northern maps,
and those parts of the
Southern maps which lie
North of 11° South Dec°.*



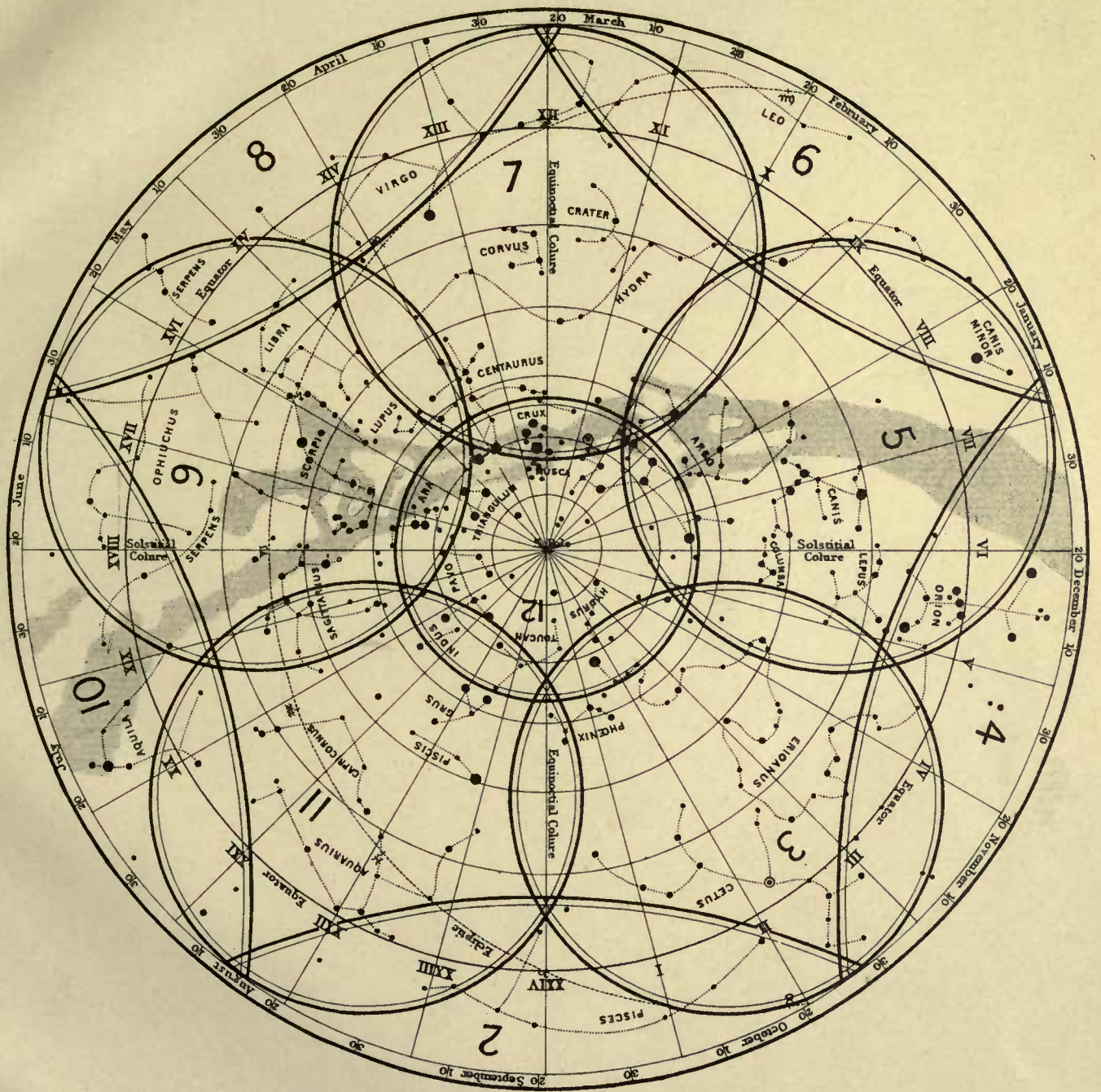
London, Longmans & Co.

*On the globe the
circles 1, 2, 4, 6, 8, and 10
are equal to each other,
and also to those circles to which
the overlaps, 3, 5, 7, 9 and 11 belong*

*The dates round the
map are those on which
the corresponding meridians
come to the South (in Northern
latitudes) at midnight.*

SOUTHERN
INDEX MAP
1880

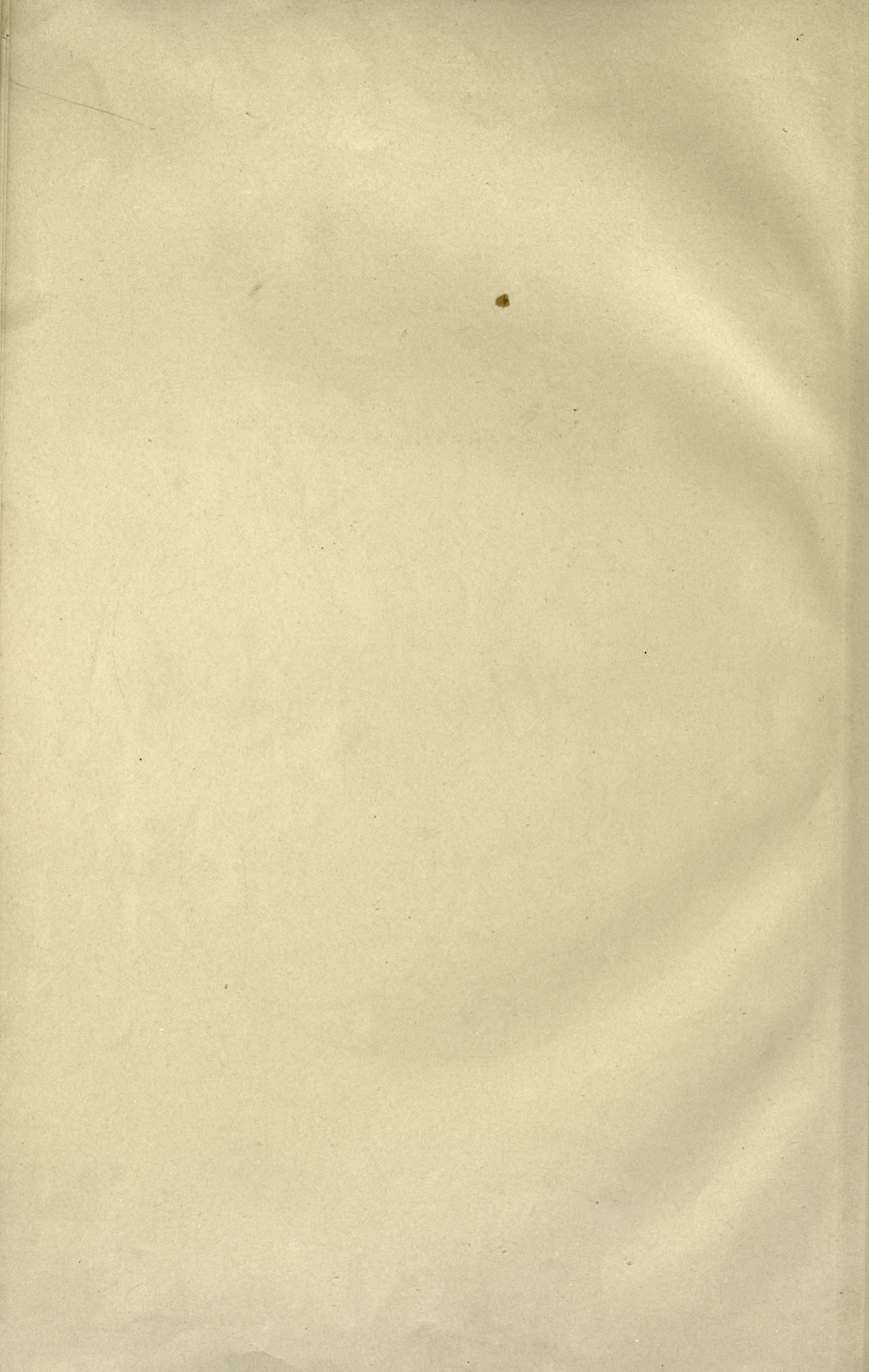
Showing all the space covered
by the six Southern maps,
and those parts of the
Northern maps which lie
South of 11° North Dec.



London, Longmans & Co

On the globe the
circles 12, 3, 5, 7, 9 and 11
are equal to each other,
and also to those circles to which
the overlaps 2, 4, 6, 8, and 10 belong

The dates round the
map are those on which
the corresponding meridians
come to the South (in Northern
latitudes) at midnight



UNIVERSITY OF CALIFORNIA LIBRARY
BERKELEY

Return to desk from which borrowed.
This book is DUE on the last date stamped below.

ASTRONOMY LIBRARY

~~JAN 23 1958~~

~~JUN 21 1958~~

~~MAR 23 1963~~

Due end of SUMMER semester
Subject to recall after

JUN 24 1996

Rec'd UCB A/M/S

JUL 17 1996

U.C. BERKELEY LIBRARIES



C037571459

298633

Proctor

QB65

P74

1896

Astron

Dept

4/29/33

UNIVERSITY OF CALIFORNIA LIBRARY

